CLAIMS

What is claimed is:

1. A method for identifying a physical address associated with a virtual address, wherein said physical address is associated with a network interface of a network device, wherein said virtual address is also associated with said network device, comprising:

forming a request message, said request message including said virtual address and a virtual network identifier value, said virtual network identifier value associated with a virtual network, said virtual network having a private address space including said virtual address;

transmitting said request message over a communication link;

receiving a response to said request message, said response including said physical address associated with said network interface of said network device; and

storing said physical address of said network device associated with said virtual address in an entry in a data structure, wherein said entry further includes said virtual network identifier and said virtual address.

2. The method of claim 1, wherein said response to said request message includes said virtual address, and further comprising:

determining, in response to header information in said response to said request message, a virtual network number identifying said virtual network; and

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

identifying said entry in said data structure in response to said virtual network number and said virtual address.

3. The method of claim 1, further comprising:

receiving a subsequent packet;

determining a virtual network number associated with said subsequent packet;

comparing said virtual network number associated with said subsequent packet to said virtual network number identifying said virtual network;

determining a destination address of said subsequent packet;

comparing said destination address of said subsequent packet with said virtual address; and

forwarding said subsequent packet based on information contained in said entry in said data structure in the event that said virtual network number associated with said subsequent packet matches said virtual network number identifying said virtual network and said destination address of said subsequent packet matches said virtual address.

4. The method of claim 3, further comprising:

selecting, responsive to said virtual network number, a virtual router from a plurality of virtual routers; and

wherein said forwarding of said packet is performed in response to said virtual router.

5. The method of claim 4, further comprising:

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WEINGARTEN, SCHURGIN,
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TEL. (617) 542-2290
FAX. (617) 451-0313

selecting, responsive to receipt of said subsequent packet, a protocol task associated with a predetermined routing protocol; and

wherein said forwarding of said packet is performed in response to said protocol task and said virtual router.

6. The method of claim 1, wherein said virtual address is a network layer address.

7. The method of claim 4, wherein said virtual address is a virtual Internet Protocol (IP) address.

8. A system for identifying a physical address associated with a virtual address, wherein said physical address is associated with a network interface of a network device, wherein said virtual address is also associated with said network device, comprising:

at least one memory for storing program code;

at least one processor, communicably coupled to said memory, said at least one processor operable to execute program code stored in said memory;

program code, stored in said memory, said program code for identifying said physical address associated with said virtual address, said program code including

program code for forming a request message, said request message including said virtual address and a virtual network identifier value, said virtual network identifier value associated with a virtual network, said virtual network having a private address space including said virtual address,

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

program code for transmitting said request message over a communication link,

program code for receiving a response to said request message, said response including said physical address associated with said network interface of said network device, and

program code for storing said physical address of said network device associated with said virtual address in an entry in a data structure, wherein said entry further includes said virtual network identifier and said virtual address.

9. The system of claim 8, wherein said response to said request message includes said virtual address, and wherein said program code further comprises:

program code for determining, in response to header information in said response to said request message, a virtual network number identifying said virtual network; and

program code for identifying said entry in said data structure in response to said virtual network number and said virtual address.

10. The system of claim 8, wherein said program code further comprises:

program code for receiving a subsequent packet;

program code for determining a virtual network number associated with said subsequent packet;

program code for comparing said virtual network number associated with said subsequent packet to said virtual network number identifying said virtual network;

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WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

program code for determining a destination address of said subsequent packet;

program code for comparing said destination address of said subsequent packet with said virtual address; and

program code for forwarding said subsequent packet based on information contained in said entry in said data structure in the event that said virtual network number associated with said subsequent packet matches said virtual network number identifying said virtual network and said destination address of said subsequent packet matches said virtual address.

11. The system of claim 10, wherein said program code further comprises:

program code for selecting, responsive to said virtual network number, a virtual router from a plurality of virtual routers; and

wherein said program code for forwarding said packet operates responsively to said virtual router.

12. The system of claim 11, wherein said program code further comprises:

program code for selecting, responsive to receipt of said subsequent packet, a protocol task associated with a predetermined routing protocol; and

wherein said program code for forwarding of said packet operates in response to said protocol task and said virtual router.

13. The system of claim 8, wherein said virtual address is a network layer address.

ATTORNEY DOCKET NO. CRESC-010XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313